

- 12 -

WHAT IS CLAIMED IS:

1. A plant-growing apparatus comprising:
 - 5 (a) a plurality of rotatable plant-growing modules, each said module comprising a cylindrical structure for holding plant-growing containers, such that said plants grow in said containers radially inwardly of said cylindrical structure toward a light source inside said cylindrical structure and roots of said plants grow radially outwardly of said cylindrical structures;
 - 10 (b) module support means for supporting each said module and for rotating each said module about its longitudinal axis in a substantially horizontal position;
 - 15 (c) module moving means for conveying said module support means and modules along a path between two separated positions; and
 - 20 (d) water-feeding means for feeding water to said plants.
2. An apparatus according to claim 1 wherein said two separated positions are a vertically higher position and a vertically lower position.
- 25 3. An apparatus according to claim 1 wherein said two separated positions are two horizontally separated positions.
- 30 4. An apparatus according to claim 1 wherein said path forms a circuit extending between a plurality of positions that are both

- 13 -

SEARCHED
INDEXED
SERIALIZED
FILED
JUN 16 2004
CLM

vertically and horizontally separated from each other, and said module moving means are adapted to convey each said module support means and module around said circuit.

- 5 5. An apparatus according to claim 4 wherein said circuit is a closed circuit and said module support means and modules can be conveyed in a revolution around said circuit.
- 10 6. An apparatus according to claim 1 wherein at least one said module of said plurality of modules is in a vertically higher position than at least one other of said modules of said plurality of modules.
- 15 7. An apparatus according to claim 1 wherein at least one said module of said plurality of modules is in a horizontally separated position from at least one other of said modules of said plurality of modules.
- 20 8. An apparatus according to any one preceding claim wherein said water feeding means comprises sprayers or injectors.
- 25 9. An apparatus according to any one of claims 1, 2, 4, 5 or 6 wherein said water feeding means is a trough in which said plant-growing containers are brought into contact with water at said vertically lower position.
- 30 10. An apparatus according to any one of claims 1 to 7 wherein said water feeding means is a trough supported on said module support means for watering said plants as said module rotates.

- 14 -

ART 34. ANDT

11. An apparatus according to any preceding claim wherein said module moving means comprises a plurality of sprocket wheels and an endless chain.
- 5 12. An apparatus according to any preceding claim wherein said module support means comprises a pair of spaced-apart rotatable members.
- 10 13. An apparatus according to claim 12 wherein said cylindrical structures have rims adapted to engage said rotatable members.
14. A method of growing plants comprising the steps of:
 - (a) placing plant material in a growing medium;
 - 15 (b) placing said medium in a rotatable growing apparatus such that plants grow radially inwardly of said apparatus toward a light;
 - 20 (c) illuminating a light source in said rotatable growing apparatus;
 - (d) rotating said rotatable growing apparatus about said light source;
 - 25 (e) moving said rotatable growing apparatus along a path between two separated positions; and
 - (f) delivering water to said growing medium.

30

- 15 -

15. A method according to claim 14 wherein said two separated positions are a vertically higher position and a vertically lower position.

5 16. A method according to claim 14 wherein said two separated positions are two horizontally separated positions.

10 17. A method according to claim 14 wherein said rotatable growing apparatus is moved around a circuit extending between a plurality of positions that are both vertically and horizontally separated from each other.

15 18. A method according to claim 17 wherein said circuit is a closed circuit and said rotatable growing apparatus is moved in a revolution around said circuit.

19. A plant-growing apparatus comprising:

20 (a) a plurality of rotatable plant-growing modules, each said module comprising a cylindrical structure for holding plant-growing containers and a light source inside said cylindrical structure about which said cylindrical structure can rotate;

25 (b) a pair of spaced-apart endless chains supported on sprocket wheels, each said chain defining a closed circuit extending between a vertically higher position and a vertically lower position;

30 (c) drive means to rotate said sprocket wheels and drive said endless chains about said circuit;

- 16 -

ART 3. AMDT

- (d) a plurality of support members extending between said pair of spaced-apart endless chains;
- 5 (e) a module support frame connected to each said support member for supporting one of said plant-growing modules, said module support frame including a pair of rotatable members;
- 10 (f) drive means to rotate one of said rotatable members and thereby rotate said plant growing module; and
- (g) a trough in which said plant-growing containers are brought into contact with water at said vertically lower position.